

## ABSTRACT OF THE DISCLOSURE

A semiconductor optical device has: a substrate having a surface of a first semiconductor having a first lattice constant; and a semiconductor lamination layer formed on the substrate, the semiconductor lamination layer having an active layer which contains quantum dots of a first kind made of a second semiconductor having a second lattice constant in bulk state smaller than the first lattice constant. The active layer may contain quantum dots of a second kind made of a third semiconductor having a third lattice constant in bulk state larger than the first lattice constant. The quantum dots of the first and second kinds are preferably disposed alternately along the thickness direction between the barrier layers having the first lattice constant.